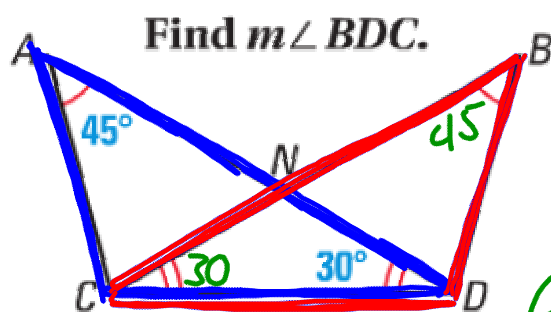


## 10/06/13 Agenda

- Warm Up
- Section 4.3 & 4.4 - SSS & SAS Congruence
- Start Homework
  - Worksheet 6 - SSS and SAS Congruence

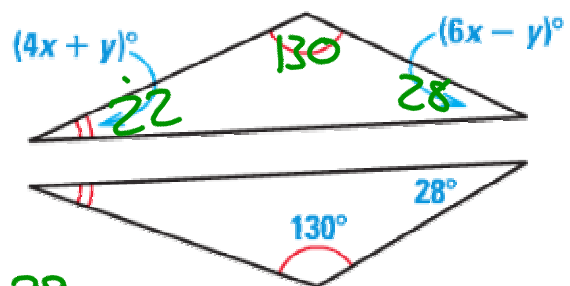
Warm Up:



$105^\circ$

$$\begin{array}{r}
 6x - y = 28 \\
 + \quad 4x + y = 22 \\
 \hline
 10x = 50 \\
 x = 5
 \end{array}$$

Find the values of  $x$  and  $y$ .



$$\begin{array}{r}
 4x + y = 22 \\
 4(5) + y = 22 \\
 20 + y = 22 \\
 y = 2
 \end{array}$$

## Section 4.3 & 4.4 - SSS and SAS Congruence

### Target 4E & 4F

**Goal:** Prove triangles congruent by SSS and SAS.

**SSS:**  
(Side, Side,  
Side)

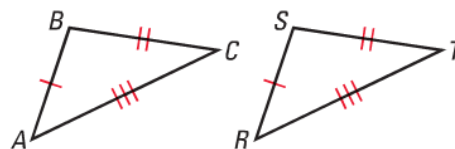
#### POSTULATE

*For Your Notebook*

#### POSTULATE 19 Side-Side-Side (SSS) Congruence Postulate

If three sides of one triangle are congruent to three sides of a second triangle, then the two triangles are congruent.

If Side  $\overline{AB} \cong \overline{RS}$ ,  
Side  $\overline{BC} \cong \overline{ST}$ , and  
Side  $\overline{CA} \cong \overline{TR}$ ,  
then  $\triangle ABC \cong \triangle RST$ .



**SAS:**  
(Side, Angle,  
Side)

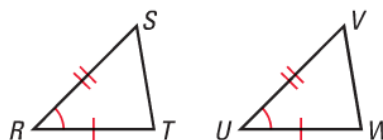
#### POSTULATE

*For Your Notebook*

#### POSTULATE 20 Side-Angle-Side (SAS) Congruence Postulate

If two sides and the included angle of one triangle are congruent to two sides and the included angle of a second triangle, then the two triangles are congruent.

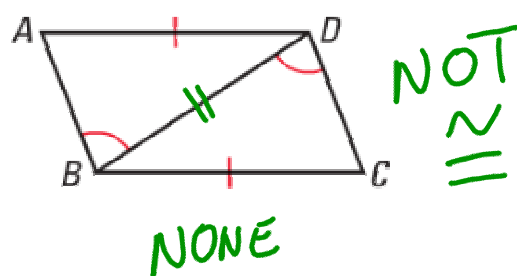
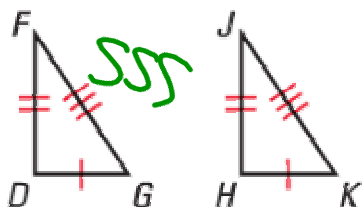
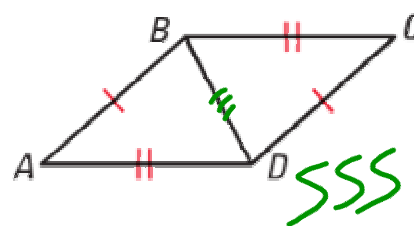
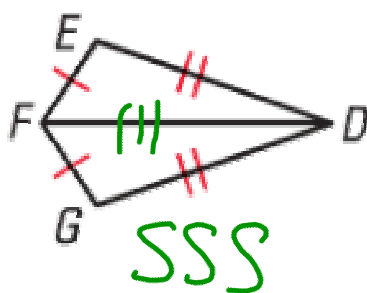
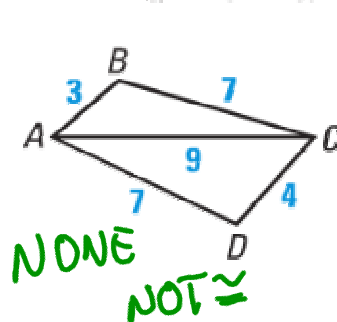
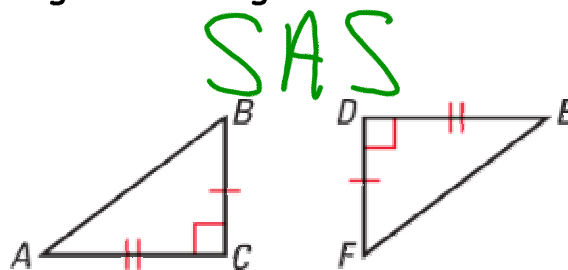
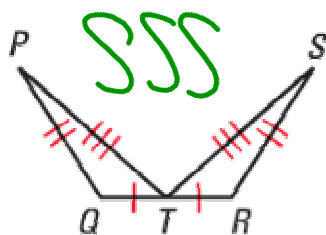
If Side  $\overline{RS} \cong \overline{UV}$ ,  
Angle  $\angle R \cong \angle U$ , and  
Side  $\overline{RT} \cong \overline{UW}$ ,  
then  $\triangle RST \cong \triangle UVW$ .



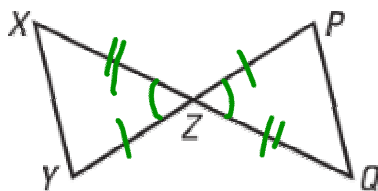
## Section 4.3 & 4.4 - SSS and SAS Congruence

### Target 4E & 4F

Example: Decide what reason the triangles are congruent  
(SSS, SAS, or None)



Z is the midpoint of  $\overline{PY}$  and  $\overline{XQ}$ .



## Section 4.3 & 4.4 - SSS and SAS Congruence

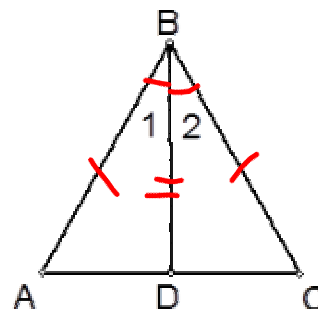
### Target 4E & 4F

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Proofs:

1. Given:  $\overline{AB} \cong \overline{BC}$ ,  $\angle 1 \cong \angle 2$

Prove:  $\triangle ABD \cong \triangle CBD$



SSS  
SAS

Statements	Reasons
1. $\overline{AB} \cong \overline{BC}$ $\angle 1 \cong \angle 2$	1. GIVEN
2. $\overline{BD} \cong \overline{BD}$	2. REFLEXIVE PROP.
3. $\triangle ABD \cong \triangle CBD$	3. SAS

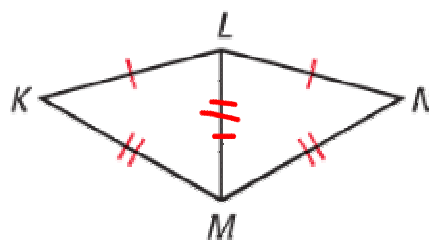
Section 4.3 & 4.4 - SSS and SAS Congruence  
Target 4E & 4F

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Write a proof.

**GIVEN**  $\triangleright \overline{KL} \cong \overline{NL}, \overline{KM} \cong \overline{NM}$

**PROVE**  $\triangleright \triangle KLM \cong \triangle NLM$



STATEMENT	REASON
1. $\overline{KL} \cong \overline{NL}$ $\overline{KM} \cong \overline{NM}$	1. GIVEN
2. $\overline{LM} \cong \overline{LM}$	2. REFLEXIVE PROP.
3. $\triangle KLM \cong \triangle NLM$	3. SSS

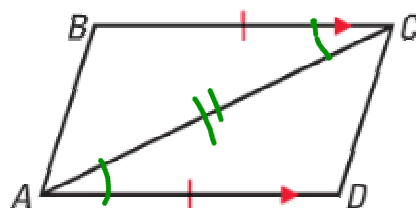
Section 4.3 & 4.4 - SSS and SAS Congruence

Target 4E & 4F

Write a proof.

**GIVEN**  $\triangleright \overline{BC} \cong \overline{DA}, \overline{BC} \parallel \overline{AD}$

**PROVE**  $\triangleright \triangle ABC \cong \triangle CDA$



SAS  
SSS

1.  $\overline{BC} \cong \overline{DA}$   
 $\overline{BC} \parallel \overline{AD}$

2.  $\overline{AC} \cong \overline{AC}$

3.  $\angle DAC \cong \angle BCA$

4.  $\triangle ABC \cong \triangle CDA$

1. GIVEN

2. REFLEXIVE PROP.

3. ALT. INT.  $\angle$ s

4. SAS